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## **Abstract**

This systematic review gathers data from the existing literature on the prevalence and course of psychiatric disorders among Unaccompanied Refugee Minors (URMs). The databases PsychINFO, PubMed, Scopus and Web of Science were searched and reference lists of papers were also manually examined to identify relevant articles. Peer-reviewed journal articles included focused on the mental health of URMs, who were forced to leave their place of residence because of threats of wars. A narrative synthesis was done to analyse the data presented in the studies.

Results from the fifteen studies included in the review highlighted the high prevalence of post-traumatic stress disorders (PTSD), depression and anxiety among URMs. The association between internalizing disorders and exposure to trauma, and time since displacement were examined. Separation from family members, death of parents and close relatives, level of exposure to armed conflicts, and threats to a person were the most frequent stressful life events (SLE) among URMs before migration.

Although the number of research done on this vulnerable population is increasing overtime, the review highlights the need for further examination of refugee mental health and the factors affecting symptoms of PTSD, depression and anxiety.

**Keywords:** Unaccompanied refugee minors; children; asylum seeker; war; mental illness; mental health; post-traumatic stress disorders; depression; anxiety; systematic review

## Introduction

A *refugee* is defined by the United Nations Convention as a person who was forced to leave his/her place of residence and is incapable of returning to it out of fear of persecution or because of conflicts in the country (UNHCR, 1951). *Unaccompanied refugee minors (URMs)* refer to “children under 18 years of age who have been separated from both parents and are not being cared for by an adult who, by law or custom, is responsible to do so” (UNHCR, 1994, p. 1). The life experiences and circumstances refugee minors encounter such as the reasons that forced them to flee their place of residence and whether they are accompanied or unaccompanied have a significant impact on their mental health (Sourander, 1998). The UNHCR recently reported that more than 65.3 million individuals were forced to leave their place of residence. This is an increase of more than fifty per cent in five years and were the highest rates of forced displacements since the aftermath of World War II (UNHCR, 2016). More than half (51%) of displaced persons worldwide are minors and the number of children is growing by the day: “In June 2015, one in ten of the refugees and migrants was a child. By the end of December, it was one in three” (UNICEF, 2016, p. 5). The highest number of unaccompanied and separated children applying for asylum come from the Syrian Arab Republic, Afghanistan, and Somalia, with more than 24 000 new applications presented each year. This global increase is largely explained by the so called Syrian crisis and Syria now is considered the highest protracted refugee country (UNHCR, 2016).

The detention or death of parents may not be the only reason behind a child arriving to the host country unaccompanied. Economic and security reasons also force the family to take the decision for children to flee the country by themselves and without their legal guardian (Çelikaksoy & Wadensjö, 2015). A traumatic event common to all URMs is the separation from their parents

and family and it is considered a major risk factor for psychological problems (Carlson et al., 2012; Fazel & Stein, 2002; Hassan et al, 2016). Exposure to stressful events such as personal injuries or seeing someone being injured (Sourander, 1998), witnessing violent acts either on the media or being exposed to it, daily and chronic stress, living conditions that are worsened, hygiene problems and exploitation impact the mental health of children (UNICEF-UNHCR, 2005). Also, URM's are at high risk of neglect, exploitation and abuse (Fazel & Stein, 2002; Sourander, 1998; UNICEF, 2016). Sexual exploitation and child prostitution is also common among the refugees to gain money in order to survive in the host country; Syrian refugees in Lebanon is an example (Charles & Denman, 2013). In addition to the puzzling journey out of their country at war without parents, URM's are faced with post-migration challenges in a country that may be significantly different from their country of origin (Fazel & Stein, 2002), with traditions and practices they need to adapt to. Also, language barriers might increase their daily stress (Ehnholt & Yule, 2006).

This review of the literature examines the effects of war-related trauma and course of PTSD, depression and anxiety among URM's after resettlement. The review also determines the impact of stressful life events on the psychological outcomes.

## **Method**

The databases PsychINFO, PubMed, Scopus and Web of Science were examined from their inception date until July 2016 in search for peer reviewed articles on refugee children exposed to wars. Also, reference lists of relevant papers were manually explored to identify additional articles. By applying Boolean operators described in the Cochrane guidelines (2011), different combinations of terms were employed for the search in the databases:

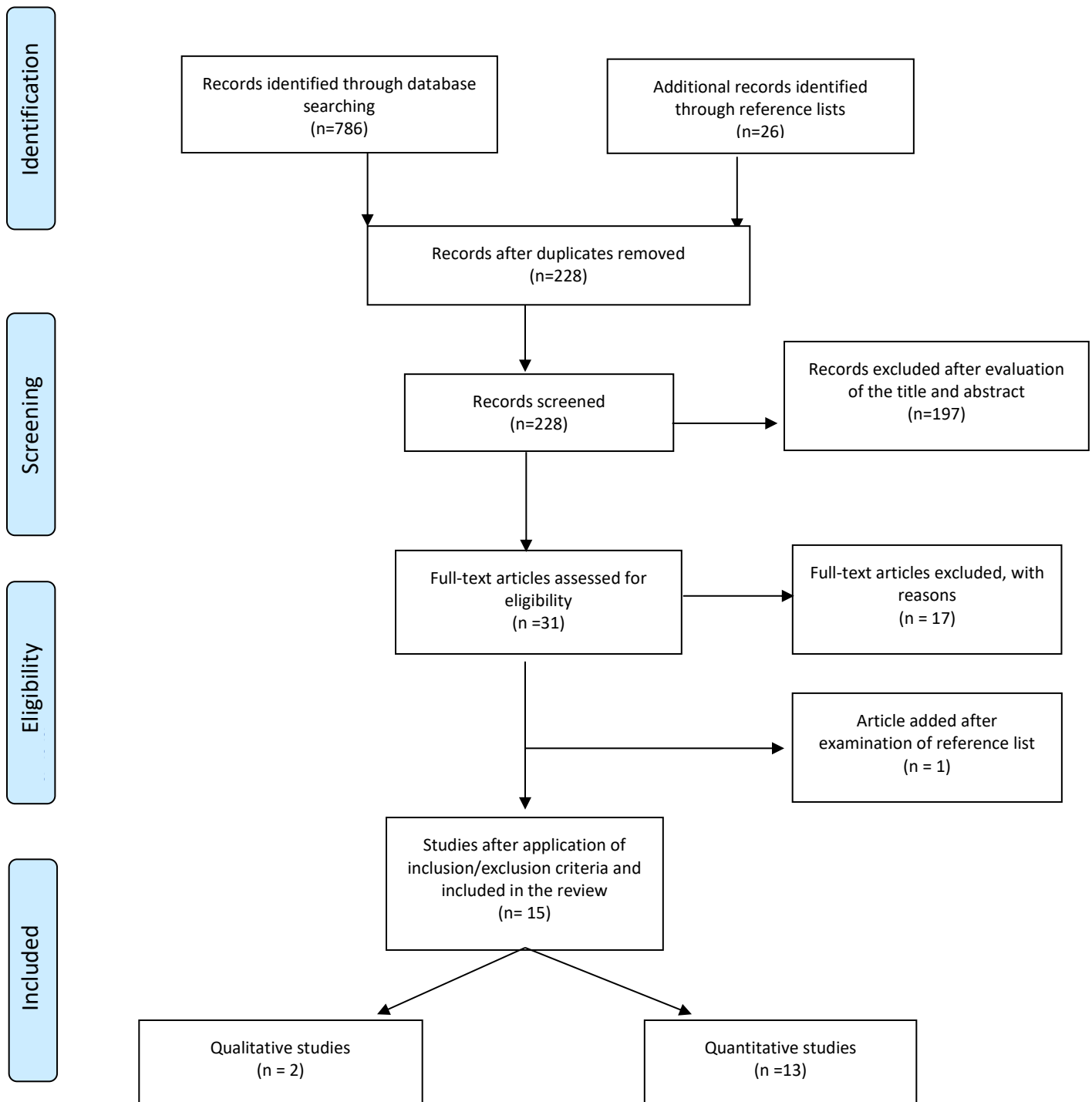
- (1) unaccompanied or separated or children or minors or adolescents *and*
- (2) war or trauma or asylum or refugee *and*
- (3) mental illness or post-traumatic stress disorder (PTSD) or depression or distress or depressive symptoms or anxiety or risk factors.

Criteria for inclusion were that papers selected are original peer-reviewed articles published in scientific journals. The search was limited to studies published in English and based on samples of accompanied and unaccompanied refugee minors (up to 18 years of age). Qualitative and quantitative methodological studies were selected if they examined trauma-related illnesses of minors who experienced war or armed-conflicts and, more specifically, included psychological outcomes of war-related traumatic events with a focus on post-traumatic stress symptoms, depressive symptoms and anxiety. Studies were excluded if the sample of refugees flew out of their country for reasons other than violence or war and studies depicting behavioural problems solely were also excluded (e.g. aggression in boys) as beyond the scope of this review.

## **Results**

The flow diagram depicted in Figure 1 presents the selection process of the included papers.

**Figure 1 - PRISMA Flow Diagram– Screening Process**



Following rigorous inclusion and exclusion criteria, electronic databases and hand-searched reference lists of relevant studies generated 786 articles. After discarding duplicates and

screening the titles and abstracts, 31 full-text papers were retrieved and read. Fourteen articles were excluded for various reasons such as: URM's were not included in the samples; medical and physiological problems were exclusively examined; participants were not exposed to war but migrated for better education and quality of life; researchers assessed psychotherapies and treatments for refugee children. Three studies were removed while examining the full texts because the mean age of the samples exceeded 18 years old. The remaining 15 studies met the inclusion criteria for the review and are summarized and plotted in Table 1.

**Table 1 – Summary of findings**

Article	Sample	Outcome measure	Main Findings
Quantitative studies			
Bean et al. (2007a)	920 URM between 12-18 years old lived a minimum of 4 months in the host country.	<ul style="list-style-type: none"> <li>• Hopkins Symptom Checklist-37 for Adolescents (HSCL-37A)</li> <li>• Stressful Life Events (SLE) checklist</li> <li>• The Reactions of Adolescents to Traumatic Stress (RATS)</li> <li>• The Child Behavioural Checklist Guardian report (CBCL/4/18)</li> <li>• The Teacher's Report Form (TRF 4/18)</li> </ul>	<ul style="list-style-type: none"> <li>• 48.7% above cut-off point (T1=4 months after arrival) on RATS for PTSD. 48.3% at T2 (12 months follow up)</li> <li>• 50.2% above cut-off point on HSCL internalizing problems. 50.9% at T2 on HSCCL-37A for depression.</li> <li>• total score of SLE is 6.1</li> </ul>
Bean et al. (2007)	1073 URMS between 12 and 18 years old in a total sample of 3273 minors	<ul style="list-style-type: none"> <li>• HSCL-37A</li> <li>• SLE</li> <li>• RATS</li> </ul>	<p>Most frequent SLE (in % of the URMs sample reporting it):</p> <ul style="list-style-type: none"> <li>- Loss of loved one (85.1%)</li> <li>- Witnessing physical maltreatment (71.7%)</li> <li>- War or armed conflict (65.9%)</li> </ul> <ul style="list-style-type: none"> <li>• Age is positively correlated with scores on RATS</li> <li>• The number of SLE experience was the most important predictor of anxiety and depressive symptoms.</li> </ul>
Derluyn, Mels, & Broekaert (2009)	124 URM in a total sample of 1294 between the ages of 11 and 18	<ul style="list-style-type: none"> <li>• HSCL-37A</li> <li>• SLE</li> <li>• RATS</li> </ul>	<ul style="list-style-type: none"> <li>• Prevalence of PTSD is 36.7% among URMs</li> <li>• Prevalence of depression is 30.2%</li> <li>• Prevalence of anxiety is 20%</li> <li>• The mean sample score of SLE is 6.96</li> </ul>
Hodes et al. (2008)	78 URM and 35 accompanied refugee children between 13 and 18 years old	<ul style="list-style-type: none"> <li>• HTQ</li> <li>• Impact of event scale (IES)</li> <li>• Birleson Depression Self-Rating Scale.</li> </ul>	<ul style="list-style-type: none"> <li>• Trauma events M=28.06 (SD 10.496). For ARC** M=12.00 (SD 9.292)</li> </ul>
Huemer et al. (2011)	41 URMs between 15 and 18 years old granted residence and protection by the Austrian public Welfare System	<ul style="list-style-type: none"> <li>• Mini-International Neuropsychiatric Interview for children and adolescents</li> <li>• The Youth Self-Report, the UCLA PTSD Reaction Index and Facts About You</li> </ul>	<ul style="list-style-type: none"> <li>• On the UCLA scale for PTSD reaction Index, 19.5% of the sample scored above cut-off score</li> <li>• Scores of sample scoring for Dysthymia 14.6% and for Major depressive episode 4.9%</li> </ul>
Jakobsen, Demott, & Heir (2014)	160 Asylum seekers, between 15-18 years old, studied shortly after arrival in host country	<ul style="list-style-type: none"> <li>• HSCL-25</li> <li>• HTQ Part IV</li> <li>• HTQ</li> <li>• SLE</li> <li>• Composite International Diagnostic Interview (CIDI)</li> </ul>	<ul style="list-style-type: none"> <li>• PTSD prevalence 30.6%.</li> <li>• MDD Scores on HSCL 25 Prevalence 9.4% and Dysthymic disorder 4.4%.</li> <li>• GAD prevalence 3.8%. Agoraphobia 4.4%. Social anxiety disorder 1.9%.</li> <li>• 96.3% of the sample experienced at least one negative life event and the mean score of SLE is 6.2.</li> </ul>



**Table 1 (continued)**

Jensen, Skåralsmo, & Fjermestad (2014)	75 asylum seekers between 13.5 and 20.7 years old—shortly after arrival to host country T1 then at 6 months T2	<ul style="list-style-type: none"> <li>• Child PTSD Symptom Scale (CPSS)</li> <li>• HSCL-37A</li> <li>• SLE.</li> </ul>	<ul style="list-style-type: none"> <li>• CPSS for depression 14.1% at T1. 14.9% at T2 (2 years). 62.7% scored above cut off score.</li> <li>• HSCL M= 27.1% at T1. 24% scored above cut off for HSCL total. 28.5% at T2</li> <li>• For the anxiety subscale, 17.3% at T1, 18.0% at T2</li> <li>• Mean score of SLE T1 is 5.8 and at T2 6.6</li> </ul>
Jensen et al. (2015)	93 Asylum seekers between 10 and 16 years old – the assessment was also done 6 months after arrival	<ul style="list-style-type: none"> <li>• SLE</li> <li>• HSCL-37A</li> <li>• CPSS</li> </ul>	<ul style="list-style-type: none"> <li>• 54% scored at or above clinical cutoff on the CPSS for PTSD.</li> <li>• 20.4% scored above the cut off score on HSCL-37A depression sub scale</li> <li>• 30.1% above the cut off score HSCL-37A anxiety subscale</li> <li>• Mean score of SLE is 5.5.</li> </ul>
Vervliet et al. (2014a)	307 URM between 14 and 18 years old in “transit center”. Assessed the first week of arrival	<ul style="list-style-type: none"> <li>• HSCL-37A</li> <li>• SLE</li> <li>• RATS</li> <li>• HTQ</li> </ul>	<ul style="list-style-type: none"> <li>• RATS for PTSD 52.7% scored above clinical threshold</li> <li>• 44.1% of sample had severe score HSCL</li> <li>• 38.3% had sever scores on HSCL anxiety sub scale</li> <li>• Mean score of SLE is 6.41</li> </ul>
Vervliet et al. (2014)	103 newly arrived UMs – asylum seekers between 14 and 17 years old	<ul style="list-style-type: none"> <li>• HSCL 37-A</li> <li>• SLE</li> <li>• RATS</li> <li>• DSSYR</li> </ul>	<ul style="list-style-type: none"> <li>• RATS for PTSD, 48% of sample at arrival had severe score on arrival, 55.1% after 6 months, 53.2% scored above threshold after 18 months.</li> <li>• HSCL depression sub scale, 33% of sample had severe scores upon arrival, 32% at 6 months, and 35% at 18 months</li> <li>• HSCL anxiety sub scale 25.7% of sample had severe scores upon arrival, 30.4% scored above the cut-off score after 6 months, and 36.0% after 18 months.</li> <li>• The number of SLE reported upon arrival was 6.63, 6.35 at 6 months, and 6.46 at 18 months</li> </ul>
Völkl-Kernstock et al. (2014)	41 URM 15 to 18 years old Living in URM residential accommodation – granted residence and protection by the Austrian public Welfare System	<ul style="list-style-type: none"> <li>• UCLA PTSD Index for DSM-IV</li> <li>• Scales for Children Afflicted by War and Persecution (SCWP)</li> <li>• The clinical utility of UCLA Trauma Reminder Inventory</li> <li>• UCLA/Brigham Young Expanded Grief Inventory</li> <li>• UCLA Trauma Exposure Profile</li> </ul>	<ul style="list-style-type: none"> <li>• UCLA PSTD reaction index 17.1 % scored above cut off score</li> <li>• 29.3% are at high risk of developing PTSD</li> </ul>

**Table 1 (continued)**

Smid et al. (2011)	920 asylum seekers at the first assessment between 12 and 18 years old – minimum 6 months upon arrival to host country 582 at the second assessment	<ul style="list-style-type: none"> <li>• HSCL</li> <li>• SLE</li> <li>• RATS</li> </ul>	<ul style="list-style-type: none"> <li>• RATS 40% of the sample of URM s scored for probable PTSD at T1, 41% of the sample scored above cut-off at T2 and 28% of the sample had late-onset PTSD</li> </ul>
Qualitative studies			
O'Toole Thommessen, Corcoran, & Todd (2015)	6 URM s from Afghanistan between 18 and 19 years old, All received refugee status	<ul style="list-style-type: none"> <li>• Individual semi-structured interviews</li> </ul>	<p>Most frequent SLE reported:</p> <ul style="list-style-type: none"> <li>• Loneliness and safety</li> <li>• Being unaccompanied</li> <li>• Worry about family members</li> <li>• Place of stay in host country and asylum status</li> </ul> <p>Predictors of depressive symptoms and anxiety:</p> <ul style="list-style-type: none"> <li>• Lack of social support</li> <li>• Lack of connectedness</li> </ul>
Sourander, (1998)	46 Asylum seekers between 6 and 17 years old waiting for placement in asylum centers	<ul style="list-style-type: none"> <li>• Structured interview with child</li> <li>• CBCL filled by the person who knew them well.</li> </ul>	<ul style="list-style-type: none"> <li>• Types of traumatic events frequently reported (the % of the sample of URM s)</li> <li>- Arguing (72%)</li> <li>- Sad (65%)</li> <li>- Worry about family (61%)</li> <li>- Lonely (59%)</li> <li>- Suspicious (54%)</li> </ul>
Thomas et al. (2004)	120 URM s between 11 and 17 years old	<ul style="list-style-type: none"> <li>• Qualitative methodology (retrospective reports from social services and semi-structured interviews with URM s)</li> </ul>	<p>Reasons for flight:</p> <ul style="list-style-type: none"> <li>• Persecution or death of family member</li> <li>• Forced recruitment</li> <li>• War</li> </ul> <p>Rape before deportation was among 32% of the sample</p>

Two studies used a qualitative methodology depicting the pre-flight experiences and reasons for flight of URM s (Thomas et al., 2004) and their experiences upon arrival to the host country

(O'Toole Thommessen et al., 2015). Two cross-sectional studies compared the prevalence of psychological distress, traumatic stress reactions (Bean et al., 2007), PTSD (Vökl-Kernstock et al., 2014) and experiences between URM and accompanied refugee minors in the host countries. Four cohort studies determined the course and predictors of PTSD, depression and anxiety among URM. A mixed method study explored varied traumatic events URM go through and the emergence of PTSD in this population (Sourander, 1998). The other quantitative studies (n=6) examined the scores of PTSD, depression and anxiety outcome measures among URM samples.

The main self-report questionnaire employed was the Hopkins Symptoms Checklist (HSCL-25 or HSCL-37A) adapted for URM to measure internalizing symptoms such as depression and anxiety (Bean et al., 2007a). The Stressful Life Events checklist (SLE) presents a list of dichotomous questions related to stress-inducing experiences. To determine the types and severity of PTSD symptoms among children from 10 to 18 years old as defined in the DSM-IV, the Child PTSD Symptom Scale (CPSS) and the Reactions of Adolescents to Traumatic Stress (RATS) were employed. The outcome measures were rated as reliable and valid for culturally diverse samples of refugee minors (Bean et al., 2007a). They are also valid for the assessment of psychiatric disorders in youth (Huemer et al., 2011). Across studies, the questionnaires were translated according to the sample population's main language. A computer program Multilingual Computer Assisted Interview (MultiCASI) was used by Vervliet and colleagues (2014b) to translate the questions of the instruments in the native language of the participants. Sample sizes ranged from 6 (O'Toole Thommessen et al., 2015) to 1110 URM (Bean et al., 2007). The average age of the young people in all the studies was below 18 years old. In the study by O'Toole Thommessen and colleagues (2015), the participants were 18 and 19 years

old, but the recollection and information of their arrival at the host country at the age of 15 and 16 was taken into consideration. The researchers in eleven of the studies examined samples of URM's originating from Africa in countries such as Somalia and Gambia. Four articles focused on samples of Afghan URM's mostly. All of the studies were done in 'Western' host countries - Netherlands (n=3), Norway (n=4), Belgium (n=2), Finland (n=1), Austria (n=2), Sweden (n=1), and the UK (n=2).

The methodological quality of each study included in this review was assessed by the Mixed Method Appraisal tool (MMAT), (Pluye et al., 2011). The quality of the studies ranged from 2 (poor quality) to 4 (high quality) with an average score of moderately high quality (M=3.13).

## **Discussion**

The key findings of the included papers were summarized in Table 1. The following section discusses the studies selected in accordance with the objectives of the current review.

### ***Post-Traumatic Stress Disorders***

Five studies used the RATS outcome measure and found that the rate of URM's in the sample falling above the cut off score for PTSD ranged from 36.7% (Derluyn et al., 2009) to 52.7% (Vervliet et al., 2014b) at the first assessment. Jensen and colleagues (2014) and Hodes and collaborators (2008) also found high prevalence of PTSD and Post-Traumatic Stress Symptoms (PTSS) among URM's. Between 62.7% and 67.3% of the samples of URM's were at high risk of developing PTSD (Hodes et al., 2008; Jensen et al., 2014). In comparison to other studies, Huemer and colleagues (2011) and Jakobsen and colleagues (2014) used a structured clinical diagnosis based on the DSM IV. The researchers concluded that between 19.5% and 30.6% of the sample of URM's were diagnosed with PTSD. Since the authors employed a standardized

clinical diagnosis tool, the rate of psychiatric disorders was lower than the ones found in other studies but it is, nevertheless, high compared to the sample of accompanied minors and minors from the host population (Bean et al., 2007; Derluyn et al., 2009; Hodes et al., 2008; Huemer et al., 2011).

Jakobsen and colleagues (2014) assessed URM's upon their arrival to the host country and found higher prevalence of PTSD compared to the sample studied by Huemer and colleagues (2011).

The latter explained their results by revealing that their samples had better stress management and coping strategies. The mixed results suggest that the support provided and personal attributes (place of stay, age, level of education and coping strategies) of URM's influence the occurrence and course of PTSD after resettlement in the host country (Smid et al., 2011).

### ***Depression and Anxiety***

Using a structured diagnostic interview (M.I.N.I. Kid), Huemer and colleagues (2011) reported that 14.6% of the sample of African male URM's had Dysthymia and 4.9% Major Depressive Disorder (MDD). Similarly, Jakobsen and colleagues (2014) assessed URM's mostly from Afghanistan and Somalia and reported 9.4% of the sample with MDD and 14.6% with Dysthymic disorder using a self-report outcome measure (HSCL-25A). Both studies had a sample of similar age groups thus the difference in the proportion between the two studies may relate to the different measures employed. Seven other studies used the HSCL self-report questionnaire to assess the prevalence and severity of internalizing symptoms. Derluyn and colleagues (2009) investigated the case of refugee children accompanied by both parents, accompanied by either of their parents and unaccompanied. The results revealed a clear difference between the groups; A higher proportion of depressive symptoms and anxiety were

reported by URM samples compared to the accompanied refugee minors. Between 38.3% and 44.1% of URM samples had severe scores on the depression subscale and anxiety subscale (Vervliet et al., 2014a). These results are further confirmed by Bean and colleagues (2007) and Huemer and colleagues (2011) who reported higher severity scores on the HSCL-37A subscales of URM samples compared to adolescents in the host country. Bean and colleagues (2007a) indicated that more than half (50.2%) of the sample of URM samples scored above the cut-off point for internalizing symptoms.

From the qualitative studies, a high prevalence of internalizing symptoms was reported; 65% of URM samples felt sad, 61% of the sample was worried all the time and 59% felt lonely (Sourander, 1998). The refugee minors wait and worry for their status and their future in the host country, and this in turn has an impact on their mental health (Bean et al., 2007a). Sixty-one percent of URM samples reported that a major source of stress was the constant worry about family members as well as their safety (Sourander, 1998). Their parents were either deceased or they were separated from them in hope of a better quality of life away from the conflicts and possible dangers. Jakobsen and colleagues (2014) affirmed that the most common anxiety disorders among URM samples were: Generalized anxiety disorder (GAD; 3.8%), Agoraphobia (4.4%) and Social anxiety (1.9%).

In regard to depressive symptoms, scores ranged between 33% and 35.1% of the sample above the cut-off score on HSCL-37A subscale, whereas concerning anxiety symptoms, the range was between 25% and 36% (Bean et al., 2007a; Jensen et al., 2014; Vervliet et al., 2014a; Vervliet et al., 2014b). The scores were still high after the first assessment for both internalizing symptoms. Conversely, the more guidance and mentorship were offered by the social workers in the living arrangements, the less the depressive symptoms and anxiety reported (O'Toole Thommessen et

al., 2015). In Hodes and collaborators' study (2008), the living arrangements and refugee status predicted the course of depressive symptoms and PTSS (These findings were confirmed by Smid and colleagues (2011) who found that late-onset PTSD was associated with worry about the refugee status and living arrangements.

### ***Exposure to War-Related Trauma***

Traumatic incidents and conflicts due to political instability and wars begin in the pre-migration phase and force the minors to leave their country and home of residence in search for a safer environment (Sourander, 1998). The nature of traumatic experiences differs for the pre-migration and resettlement phases.

#### *Stressful Life events (SLE) before migration*

The mean number of SLE experienced by URMs ranged from 5.8 (Jensen et al., 2015) to 6.96 (Derluyn et al., 2009) upon their arrival in the host country, which is almost twice the number of SLE compared to refugees accompanied by both parents ( $M = 3.02$ ) and refugees accompanied by one parent (mean between 3.26 and 3.55) (Bean et al., 2007; Hodes et al., 2008; Vervliet et al., 2014a). 81.7% of URMs experienced life-threatening events before migration (Jakobsen et al., 2014; Hodes et al., 2008; Vervliet et al., 2014a; Völkl-Kernstock et al., 2014). More specifically, over half of the sample experienced violence and torture such as rape, and 83% reported experiencing some kind of persecution (Sourander, 1998; Thomas et al., 2004). Furthermore, between 59% and 66% of URMs witnessed a war or armed conflict compared to 22.3% of Accompanied Refugee Children and between 71% and 78% witnessed violence and torture (Bean et al., 2007).

### ***SLE during migration journey and post-migration phase***

Most URMs (96.4%) encountered traumatic and stressful events along the migration journey and after resettlement in the host country (Jakobsen et al., 2014). During the migration journey, the separation and fear of the unknown increased the risk of anxiety and depressive symptoms among URM samples (Derluyn et al., 2009); 72, 4% were forced to separate from their family (Hodes et al., 2008). Certain types of stressful events were more prominent than others such as discrimination and difficulties adapting to the new environment (Vervliet et al., 2014a). Lack of social support and connectedness was similarly a recurrent theme among URMs after resettlement with 61% of the samples reporting being worried about the future in the host country (O'Toole Thommesssen et al., 2015; Thomas et al., 2004; Vervliet et al., 2014; Sourander, 1998). Stresses related to the residence permit and refugee status were also reported in all the studies (Smid et al., 2011). Greater attention should be given to the country of origin of URMs and its relation to the host country to better understand worries and anxiety symptoms generated from the resettlement processes (Hodes et al. 2008).

### ***Effect of SLE on PTSD, anxiety and depressive symptoms.***

The total number of SLE experienced is a risk factor for PTSS, depressive symptoms and anxiety (Bean et al., 2007a; Derluyn et al., 2009; Hodes et al., 2008; Jensen et al., 2015; Smid et al., 2011; Völkl-Kernstock et al., 2014; Vervliet et al., 2014a; Vervliet et al., 2014b). The severity of traumatic events is associated with the severity of psychological outcomes. For example, death of a relative and post-migration stresses showed more severe PTSD and depression outcomes among URMs (Sourander, 1998). In addition to being separated from loved ones and witnessing armed conflicts and wars before migration, URMs worry about their family and their future in



the host country. The cognitive biases related to depressive symptoms may predict PTSD (Smid et al., 2011). For example, the changes in living arrangements as they become adults under the local laws and their refugee status all constitute risk factors for the development of anxiety and depressive symptoms (Derluyn et al., 2009; Jakobsen et al., 2014; O'Toole Thommessen et al., 2015; Sourander, 1998; Thomas et al., 2004; Vervliet et al., 2014a). Contrary to previous findings, Vervliet and colleagues (2014a) reported the number of SLE was a risk factor for depression but did not lead to PTSS. Also, Jensen and colleagues (2014) found the number of SLE predicted anxiety disorders and PTSD but not depression and avoidance symptoms. Nevertheless, most studies found that being unaccompanied (Bean et al., 2007a; Derluyn et al., 2009; Smid et al., 2011), living with limited support system (e.g. living arrangement) (O'Toole Thommessen et al., 2015), bereavement (Derluyn et al., 2009; Vervliet et al., 2014ba), and the total number and severity of SLE experienced (Smid et al., 2011), all predicted the level of PTSD among URM. The latter risk factor is confirmed by Bean and colleagues (2007) and Völkl-Kernstock and colleagues (2014) who found that PTSD is correlated to the nature of the SLE experienced. Only the study by Bean and colleagues (2007a) and Vervliet and colleagues (2014a) found significant differences in the rate of PTSD decreasing from 48.7% to 48.3% at the second assessment after a one-year follow-up. Furthermore, the prevalence of late-onset PTSD in a sample of 920 URM was 28% (Smid et al., 2011). In other words, 28% of URM who were not diagnosed with PTSD at the first assessment, were diagnosed with PTSD after two years of resettlement (Smid et al., 2011).

### ***Follow-up Studies***

A 12-month follow-up assessment confirms the chronicity of psychological distress (Bean et al.,

2007a). Three studies found that within two years after resettlement, the rate of PTSD increased among URMs (Jensen et al., 2014, Smid et al., 2011, Vervliet et al., 2014a). For example, the PTSD scores after 6 months of the first assessment increased from 48% to 55.1% among URMs from Afghanistan (Vervliet et al., 2014b). Conversely, scores on all measures were still high from the first assessment at arrival up to 18 months after resettlement according to the longitudinal studies (Jakobsen et al., 2014; Jensen et al., 2014; Vervliet et al., 2014b). However, in the follow up assessment after 18 months of the migration journey, a decrease in PTSD scores from 55.1% to 53.2% was reported by Jakobsen and colleagues (2014). The researchers assessed refugee minors upon their arrival to the asylum centre, and the high psychiatric morbidity revealed the impact of trauma before their arrival and before the stressors that may come alongside the resettlement phase. Derluyn and colleagues (2009) found no significant correlation between the time since the migration and PTSS, symptoms of depression and anxiety. There were almost no changes in the levels of PTSS, depression and anxiety 6 months after arrival and up to 2 years after resettlement (Jensen et al., 2014; Vervliet et al., 2014b). Nevertheless, Jensen and colleagues (2015) and Vervliet and colleagues (2014b) found that the time since arrival to the host country was not associated with any of the measures used but it is in fact the type of intervention and support provided by the mental health services that affected the outcomes. In other words, it is the level and amount of emotional support received after resettlement that predicts the course of depressive symptoms, anxiety and PTSS (Bean et al., 2007a).

***Understanding the risk, emergence and protective factors of PTSD, depression and anxiety among URMs.***

High levels of psychiatric disorders upon arrival of URMs to the host country and at the first assessment suggest that psychiatric morbidity began before post-migration resettlement (Bean et

al., 2007; Derluyn et al., 2009; Hodes et al., 2008; Huemer et al., 2011; Jakobsen et al., 2014).

The most prevalent disorders were PTSD, depression and anxiety (Huemer et al., 2011; Jakobsen et al., 2014). URM's scored higher on these subscale measures compared to ARC and minors from the host country (Bean et al., 2007; Derluyn et al., 2009; Hodes et al., 2008; Huemer et al., 2011; Sourander, 1998; Vökl-Kernstock et al., 2014).

A variety of studies noted the co-occurrence of PTSD with anxiety and depression among refugee minors (Kinzie et al. 1986; Hodes, 2000; Macksoud & Aber, 1996). The significant predictors of psychological disorders and anxiety are the ongoing daily stresses and adjustments along the journey and post-migration resettlement (Hodes, 2000; Montgomery, 1998; Sack, Clarke, & Seeley, 1996). In regard to the course of PTSD, conflicting results were found; Bean and colleagues (2007a) reported a decrease in the severity and number of symptoms for PTSD overtime, and this finding was confirmed by Sourander (1998), who also found that family cohesion and support before migration are protective factors to URM's. Social support and warmth of the population in the host country was considered an important factor in their journey for resettlement (Bean et al., 2007a). Creating bonds with social workers and other refugee minors helped URM's overcome difficulties in the host country (O'Toole Thommessen et al., 2015). As the studies in the review stated and confirmed by Kolltveit and colleagues (2012), the strongest predictor for the maintenance of psychological distress and PTSS is the number of SLE the minors are exposed to (Thabet and Vostanis, 2000; Bean et al, 2007a). A dose-effect relationship was found between PTSD and the number of SLE reported and between the number of SLE (mainly exposure to armed conflicts) and anxiety (Kolltveit et al., 2012). So, the higher the number of traumatic experiences reported, the higher the severity of mental health problems assessed among URM's. Conversely, Kinzie and colleagues (1986) revealed a non-significant

relationship between the number of SLE reported and depressive symptoms. The researchers stated that it is the post-migration stresses such as acculturation and social adjustments that better predicted the development of psychological morbidity.

## **Conclusion**

Considering the large and increasing number of URM, the number of studies examining their mental health is scarce. Following the recent Arab uprising and the Syrian crisis, research on this specific population is at its beginnings. However, from the literature reviewed, some conclusions can be made such as: exposure to war-related events, family instabilities before migration, displacement and post-migration stresses predicted psychological distress and traumatic stress reactions among URM. Varied stressful life experiences affected refugee children along their journey and predicted different psychiatric disorders. For example, the number of SLE predicted symptoms of depression and anxiety, and being unaccompanied and the level of exposure to war-related events were correlated with higher levels of PTSD symptoms. SLE such as separation from family members, death of parents and close relatives, level of exposure to armed conflicts, and threats to person were the most frequent among URM before migration. After migration, challenges and adversities arise in the host country such as cultural adaptation and worry about the refugee status and resettlement increase with time. Quantitative studies reported that URM had higher risks of developing mental health disorders upon their arrival in the host country. Longitudinal studies depicted a decrease in the severity of the symptoms over time when emotional support was provided. More information and in-depth examination of the different factors that could lead to PTSD, depression and anxiety were also raised in the studies included. Although small in number, the qualitative studies gave different types of data to cover the varied aspects of the review's objectives; they shed light on the URM's discourse and distressing

experiences. A global and more complete understanding of the situation of URM's concerning PTSD, depression and anxiety was possible by employing both methodologies. Thus, a clearer path for future directions in research and in practice is more promising.

This systematic review had limitations such as the population studied for this research was hard to define since the range of age of a minor varied among researchers and the countries where the studies were conducted. Concerning the reviewed articles, all of them had a sample of minors with a mean age of 18 and under, except for one study that required URM's aged between 18 and 19 years old to elaborate on their experiences when they first arrived as minors in the host country. The samples of URM's were classified under the same category irrelevant of the specific traumatic events experienced and reason for flight.

Another limitation was the number of relevant studies that followed the inclusion criteria and objectives of the current review. A number of papers could have been included if the scope of the study encompassed also behaviours, such as aggression, that are possible symptoms of mental health and emotional problems. Although this was beyond the objectives of the current literature review, future reviews could target this aspect of mental health among URM's.

Finally, this review focused on emotional and mental health problems whereas there is a body of literature showing that refugees are generally resilient and perhaps because of this reason access mental services at a lower rate than expected (Colucci et al, 2014; Colucci et al, 2015, in press). For example, sociocultural factors such as religious rituals and other traditions were actively used as coping strategies to keep them grounded in their origins (Raghallaigh & Gilligan, 2010; Qin et al., 2015; Völkl-Kernstock et al. (2014). So, future studies and reviews should also explore resilience and coping mechanism

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